rolling amount by the deceleration of the vehicle, wherein the target value of the deceleration is increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity.

REMARKS

Claims 1-8 are pending. By this Amendment, claim 1 is amended.

An Appendix of marked-up claim 1 is attached for the convenience of the Examiner per 37 CFR §1.121.

Applicants acknowledge with appreciation the indication of allowable subject matter in claims 3, 5 and 6 . Applicants have not re-written claims 3, 5 and 6 in independent form however, because of Applicants' belief that claim 1, from which claims 3, 5 and 6 depend, is patentable over the applied art, for reasons stated below.

The Office Action indicates that the Supplemental Information Disclosure Statement filed on May 17, 2001 fails to comply with 37 CFR §1.98(a)(2) because copies of the cited references were not provided by Applicants.

Applicants respectfully traverse this holding. Applicants have attached a copy of a receipt filed with the Supplement Information Disclosure Statement (IDS) which clearly indicates that three references were filed with the IDS. The date stamp by the USPTO is prima facie evidence that the three references were filed with the IDS - see MPEP §503. However, for the convenience of the Examiner, another copy of each reference is attached hereto.

The Office Action rejects claims 1 and 2 under 35 USC § 103(a) as unpatentable over Japanese Patent JP-937407 to Taga et al. (using U.S. Patent 5,915,801 as an equivalent) in view of Harada et al. (JP-10-278762, corresponding to U.S. Patent 6,081,761). This rejection is respectfully traversed.

The Office Action asserts that Taga et al's brake controller comprises a means for providing a first parameter quantity indicative of a variable amount of vehicle or accelerator pedal angle signal for determining pedal angle position as labeled in Fig. 1. The Office Action appears to equate the "first parameter quantity" recited in claim 1 with the "vehicle or accelerator pedal angle signal." In Taga et al., the regeneration braking is triggered by full release of the accelerator pedal - see col. 3, lines 22-26.

The Office Action states that Taga et al. discloses "a means for providing a second parameter quantity of a change rate of a variable amount of a vehicle body or pedal releasing speed as disclosed in col. 7, lines 55-60." The Office Action appears to be equating "the second parameter quantity" recited in claim 1 with the "change rate of a variable amount of a vehicle body or pedal releasing speed." In Taga et al., the braking applied by the regeneration motor to achieve an engine brake feeling is targeted to be increased according to an increase of the accelerator releasing speed as shown in Fig. 5 so that when the driver releases the accelerator pedal more quickly, a stronger regeneration braking torque is applied, so as to match the intuitive expectation for deceleration by the driver.

Although the Taga et al. reference is usable during a vehicle turn, Taga et al. do not address vehicle roll control. Taga et al. is directed to deceleration control of a vehicle for which so-called engine braking is not available, to provide a vehicle with deceleration performance which simulates engine braking - see the first line of the abstract, and the Summary of the Invention in col. 1, lines 51-66. The simulated engine braking is provided by regeneration action of an electric motor (more correctly, generator).

However, if the "accelerator releasing speed" of Taga et al. is considered to be the second parameter recited in claim 1, the "parameter" targeted according to the "second parameter", is only subordinate to and does not counteract the second parameter. As such, the targeted parameter in Taga et al. is not, as recited, a parameter which counteracts the

second parameter so that an increase of the target value of the deceleration caused by an increase in the second parameter suppresses the second parameter from further increasing. When the driver's foot is off the gas pedal, the alleged second parameter of Taga et al. can no longer increase. Further, in Taga et al., the value of the target braking torque of Fig. 5 is a static, one time, value read out from a map, such as Fig. 5, only once during a one time control at the moment when the accelerator pedal reaches the fully released position, as is apparent from the flowchart of Fig. 2. In this connection, there is no teaching of the recited target deceleration being increased from a predetermined minimum value to a predetermined maximum value according to an increase in the second parameter.

In contrast, in Applicants' invention, as recited in claim 1, the target parameter (deceleration of the vehicle by a braking) which is increased according to an increase of the second parameter (change rate of the rolling amount of the vehicle) counteracts the second parameter, dynamically changing throughout the execution periods of a one time over-rolling control, because when the vehicle is decelerated by the over-roll control, the change rate of the rolling amount is correspondingly suppressed during the over-roll control being carried out.

Indeed, the present invention, basically recited in claim 1, is a roll control in which the over-rolling of the vehicle body is suppressed by decelerating the vehicle based on a counterbalance between the rolling moment caused by a vehicle turn while the vehicle is rolling and the spring action of the vehicle suspension mechanism which is biased by a centrifugal force which, however, is decreased by a deceleration of the vehicle running speed achieved by the over-roll control. This is a feedforward control because it does not trace the amount of rolling itself. This is the reason why the target value, deceleration, is increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter. The feedforward control is superior in terms of quickness

of response as compared with a feedback control, while some restriction is generally desired against an over-control. The feedforward control needs to be triggered to start by an appropriate measure. In the present invention, it is achieved by the first parameter indicative of a rolling amount of a vehicle body exceeding a threshold value predetermined therefor. Taga et al. never discloses or suggests this type of control.

The Office Action admits that Taga et al. do not disclose using their system to control over-rolling of the vehicle. To remedy this admitted deficiency, the Office Action refers to Harada et al., which is directed to deceleration control for a large turning vehicle, such as a truck or bus, to restrain it from excessive rolling - see col. 1, lines 45-51. Applicants respectfully submit that the Office Action fails to provide proper motivation to combine the teaching of these references. The first requirement of proper motivation is that a showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This evidence may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. See Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). However, the suggestion more often comes from the teachings of the pertinent references. See In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459(Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." See Dembiczak, 175 F.3d at 1000, 50 USPQ2d at 1617.

Taga et al. fail to disclose such a feedforward control in which a target determined by a parameter counteracts the parameter. Simply, as for the parameters concerned, Taga et al. are concerned primarily with regenerative braking to simulate engine braking torque. Harada

et al. do not employ regenerative braking nor are they interested in simulating engine braking torque with a regenerative braking system. Nor is there any suggestion in either Taga et al. or Harada et al. of using a regenerative braking simulation system to control over-rolling of a vehicle.

Therefore, there would be no incentive to one of ordinary skill in the art to somehow modify Taga et al, in view of Harada et al, (who do not even disclose regenerative braking or regenerative braking simulation) in some unspecified manner to use to modify the target deceleration control of Taga to include the over-rolling of a vehicle in the aforementioned feedforward manner.

Applicants also respectfully point out that the rejection fails to demonstrate that modifying Taga et al. in view of Harada et al. as suggested is even feasible. Harada et al., as pointed out in an earlier Request for Reconsideration, does not provide a second parameter quantity indicative of a change rate of the rolling amount of the vehicle. Therefore, the rejection is based on plucking a single parameter from Harada et al. without any suggestion to do so in either Taga et al. or Harada et al. and without regard to the operation of the reference combination or how to make the reference combination work once the parameter is plucked from Harada et al. Moreover, the case law requires that for motivation to be proper, showing that something is feasible is not enough. Just because something is feasible does not mean that it is desirable or that one of ordinary skill in the art would be motivated to do what is feasible. See Winner International Royalty Corp. v. Wang, 53 USPQ2d 1580 (Fed. Cir. 2000) which points out that motivation to combine references requires a showing not just of feasibility, but also of desirability.

Accordingly, this rejection of claim 1 is without merit and should be withdrawn.

With respect to claim 2, the Office Action states that Taga et al., as modified, teaches a means for providing a first parameter quantity of a change rate of a rolling amount of a

vehicle body or lateral acceleration, citing col. 13, lines 48-51 of Harada et al. This rejection is not fully understood. Col. 13, lines 48-51 of Harada et al. were not discussed in the rejection of claim 1 and the Office Action fails to indicate how col. 13, lines 48-51 were combined with the regenerative braking torque system of Taga et al. to render obvious the claimed invention. This rejection is taking a bit of Harada et al., not indicating how it is used to modify Taga et al., or why one would be motivated to do just take that bit of the reference to modify the base reference, and reaching to the conclusion that the bit of Harada et al somehow meets the recited first parameter quantity. The rejection simply lacks a proper basis.

Applicants respectfully submit that claim 2 is not obvious for the reasons that claim 1, from which claim 2 depends, is not obvious, and for the reasons stated in the previous paragraph.

Although the claims, as recited, distinguish over the applied art for the reasons stated above, Applicants have amended claim 1 to clarify the facts that (1) the over-roll control of a vehicle is started to decelerate the vehicle, (2) when the over-roll amount is once started, the control is carried out such that the vehicle is decelerated to accomplish a target deceleration determined according to a parameter such as "rolling speed" which occurs earlier than the rolling amount in the phase of change, so as to obtain a higher responsiveness of over-roll control, (3) since the rolling speed is counteracted by the deceleration of the vehicle as a physical performance of the vehicle, the control that the target deceleration is made higher as the rolling speed is higher provides a quickly responsive feedforward control, and (4) since, however, the control is feedforward control not tracing the rolling amount, the target value of deceleration is restricted between upper and lower limits.

The Office Action rejects claim 4 under 35 USC §103(a) as unpatentable over the Japanese Patent (JP-937407) to Taga et al. in view of Harada et al. (JP10-278762) and further to in view of Ikemoto et al. (U.S. 4,807,128). This rejection is respectfully traversed.

The Taga et al. -Harada et al. reference combination fails to render the claimed invention obvious for at least the reasons stated above. Ikemoto et al. is applied to teach, in col. 3, line 28, the use of rate of change of the steering angle in the control of vehicle over-roll. The Office Action asserts that it would be obvious to modify the second parameter quantity indicative of a change rate of the variable amount of the vehicle body of Taga et al. to include a rate of change of the steering angle as taught by Ikemoto et al. to provide an alternate parameter for triggering the necessary target deceleration control.

Ikemoto et al. merely measure the rate of change of the steering angle as one of any inputs to predict the roll angle of the vehicle. Neither Taga et al. nor Harada et al. include such a parameter in their devices. Taga et al. never mentions using a parameter to measure the tendency of a vehicle to roll over. Harada et al. appear content to simply use the steering wheel angle and compute a steering wheel angular speed - see col. 8, lines 40-64. There is no proper motivation for one of ordinary skill in the art to modify either reference to measure the change rate of the steering angle. The assertion that one could use this parameter as an alternative is, at best, an assertion that it might be feasible, but not that it would be desirable. The only teaching of the desirability of using such a parameter is found in Applicants' disclosure. Thus, the reference combination of Taga et al., Harada et al. and Ikemoto et al. is improper and does not render the claimed subject matter obvious for the reasons stated above.

Accordingly, Applicants respectfully request that the rejections of claims 1, 2 and 4 under 35 USC §103(a) be withdrawn, the references submitted on May 17, 2001 be considered on their merits, and claims 1-6 allowed.

Should the Examiner believe that anything further is needed to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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Robert J. Webster
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JAO:RJW/ala

Attachments:
(1) Appendix
(2) May 17, 2001 IDS date stamped receipt
(3) Copies of References

Date: **February 6, 2002**

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APPENDIX

Changes to Claim

The following is a marked-up version of the amended claim:

1. (Twice Amended) A device for controlling an over-rolling of a vehicle having a vehicle body, wheels, a steering system, and a brake system, the device comprising:

means for providing a first parameter quantity indicative of a rolling amount of the vehicle body,

means for providing a second parameter quantity indicative of a change rate of the rolling amount of the vehicle body, and

means for controlling the brake system such that the brake system is actuated to accomplish a target deceleration of the vehicle when the first parameter quantity exceeds a threshold value predetermined therefor so as to counteract a further increase of the rolling amount by the deceleration of the vehicle, wherein the target value of the deceleration ~~being~~ is increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity.